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10/658,561	09/08/2003	Jyshyang Chen	O2MICRO 02.20	3263
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GROSSMAN, TUCKER, PERREAULT & PFLEGER, PLLC 55 SOUTH COMMERICAL STREET MANCHESTER, NH 03101				
			EXAMINER	
			PATEL, NIRAV B	
			ART UNIT	PAPER NUMBER
			2135	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/658,561

Applicant(s)

CHEN, JYSHYANG

Examiner

Nirav Patel

Art Unit

2135

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2007 (RCE).
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-13,15 and 16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,8-13,15 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 9/11/07.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

1. Applicant's submission for RCE filed on Sep. 11, 2007 has been entered. Claims 1-6, 8-13, 15, 16 are pending.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 1-6, 8-13 and 15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 9 recites "A firewall/VPN integrated circuit comprising: a router core.....; a firewall system, comprises a first layer.....; a second layer.....; a VPN configured to provide security function.....; an interface configured to determine.....". In accordance with page 1 lines 15-19, page 3 lines 10-14 of applicant's specification, firewall/VPN portion are not limited to hardware (i.e. software modules). As such, the claimed system must include hardware necessary to realize any of the functionality of the claimed modules and produce a useful, concrete and tangible result. Absent recitation of such hardware or physical transformation as part of the claimed system, it is considered non-statutory.

Claims 10-13, 15 depend on claim 9, therefore they are rejected with the same rationale applied against claim 9 above.

Claim 1 has limitation that are similar to those of claim 9, thus it is rejected with the same rationale applied against claim 9 above. Claims 2-6, 8 depend on claim 1, therefore they are rejected with the same rationale applied against claim 1 above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vairavan (US Pub. No. 2002/0083344) in view of Hui et al (US Pub. No. 2004/0010712) in view of Canion et al (US Patent No. 2002/0108059) in view of Foschiano et al (US Pub. No. 2004/0022253) and in view of Yang et al (US Patent No. 7,003,118).

As per claim 1, Vairavan discloses:

at least one wide area network (WAN); at least one local area network (LAN) [Fig. 1, paragraph 0047, 0048]; and an integrated firewall/VPN chipset configured to send and receive data packets between said WAN and said LAN [Fig. 1, component 110]. Further, Vairavan teaches filtering techniques within different firewall layers [paragraph

0086, 0087 – i.e. a firewall comprising multiple layers], a first layer including a header match packet filtering engine configured to provide pattern matching in selected headers of data, a second layer including a content match packet filtering engine configured to analyze the scope of at least one data packet [paragraph 0074-0079, 0086, 0088, 0137 lines 1-3].

Hui teaches a firewall which provides packet filtering function along with application proxy function (i.e. a third layer), a third layer including at least one application proxy configured to provide additional pattern matching [paragraph 0220]. Further, Hui teaches a listening table which stores a TCP/UDP connection setup in a look-up-table [paragraph 0070, 0149] and to forward the setup progress to said CPU for tracking [paragraph 0070, 0084, 0090, 0105].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Hui with Vairavan, since one would have been motivated to improve speed/security for firewall and speed for VPN [Hui, paragraph 0009].

Canion teaches a fourth layer including a session match engine configured to store a TCP/UDP connection setup in a look-up-table and to forward the setup progress to said CPU for tracking [paragraph 0067, 0068, 0072].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Canion with Vairavan and Hui, since one would have been motivated to examine the packet for security violation to distinguish real requests from attack based requests [Canion, paragraph 0009].

Foschiano teaches hardware engine to provide pre-analysis processing to reduce the workload of a central processing unit (CPU) [paragraph 0060, 0042].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Foschiano with Vairavan, Hui and Canion, since one would have been motivated to prevent overload of the inspection engine [Foschiano, paragraph 0042].

Further, Vairavan discloses:

a VPN configured to provide security functions for data between said LAN and said WAN, wherein said security functions are selected from the group consisting of encryption, decryption, encapsulation, and decapsulation of said data packets [paragraph 0109, 0112]; an interface configured to determined if said data packets are plain text or cipher text, said interface further configured to forward a preselected number of bytes to said firewall if said data packet are plain text, said interface further configured to forwarded said data packets to said VPN if said data packets are cipher text [Fig. 6A, 7, 8, paragraph 0132]. Further, Vairavan teaches a VPN processor configured to decrypt and decapsulate said at least one data packet, said VPN further includes an inbound security database having database of tunnels configured to provide VPN processor with tunnel information used to decrypt and decapsulate said at least one data packet, said VPN further including protocol instructions having macrocodes configured to instruct said VPN processor to decrypt and decapsulate said at least one data packet according to a user-defined security procedure [paragraph 0080-0085, 0091-0101].

Yang teaches: the VPN including a VPN packet buffer configured to receive at least one of said data packets and to forward said at least one data packet to an inbound VPN processor to decrypt and decapsulate said at least one data packet, said VPN further including an inbound security database having a database of tunnels configured to provide VPN processor with tunnel information used to decrypt and decapsulate said at least one data packet [Fig. 5, 6, col. 8 lines 8-67, col. 9 lines 1-18].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Yang with Vairavan, Hui, Canion and Foschiano, since one would have been motivated to increase the speed for the network security operation related to IPSEC and Authentication Headers [Yang, col. 1 lines 19-21].

As per claim 2, the rejection of claim 1 is incorporated and Vairavan discloses:

said chipset further comprises a router adapted to route data between said WAN and said LAN [Fig. 1, 2, paragraph 0058, 0122, 0139 lines 1-4].

As per claim 3, the rejection of claim 1 is incorporated and Vairavan teaches said firewall is configured to provide static and/or dynamic data packet filtering (i.e. based on filtering rules/policy) [paragraph 0074].

As per claim 9, it encompasses limitations that are similar to limitations of claims 1 and 2. Thus, it is rejected with the same rationale applied against claims 1 and 2 above.

As per claim 10, the rejection of claim 9 is incorporated and it encompasses limitations that are similar to limitations of claim 3. Thus, it is rejected for the same reason set forth in the rejection of claim 3 above.

4. Claims 4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vairavan (US Pub. No. 2002/0083344) in view of Hui et al (US Pub. No. 2004/0010712) in view of Canion et al (US Patent No. 2002/0108059) in view of Foschiano et al (US Pub. No. 2004/0022253) and in view of Yang et al (US Patent No. 7,003,118) and in view of Lee (US Patent No. 7,047,561).

As per claim 4, the rejection of claim 1 is incorporated and Lee teaches said header match packet filtering engine is configured to provide pattern matching in selected headers of said data and their combination from L2, L3 and L4 headers [Fig. 5].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Lee with Vairavan, Hui, Canion, Foschiano and Yang, since one would have been motivated to provide the necessary speed/security for real-time Internet applications [Lee, col. 2 lines 15-17].

As per claim 11, the rejection of claim 10 is incorporated and it encompasses limitations that are similar to limitations of claim 4. Thus, it is rejected for the same reason set forth in the rejection of claim 4 above.

5. Claims 5, 6, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vairavan (US Pub. No. 2002/0083344) in view of Hui et al (US Pub. No. 2004/0010712) in view of Canion et al (US Patent No. 2002/0108059) in view of Foschiano et al (US Pub. No. 2004/0022253) in view of Yang et al (US Patent No. 7,003,118) and in view of Krishna et al (US Patent No. 6,477,646).

As per claim 5, the rejection of claim 1 is incorporated and Vairavan discloses the chipset further configured to analyze access control functions [0086, 0132].

Krishna teaches a security chip to incorporate both encryption and authentication functionality in a signal chip [Fig. 2, 4]. Further, Kim teaches processing the packet based on preselected bytes of the data packet [col. 3 lines 64-67, col. 4 lines 1-2, col. 5 lines 38-50].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Krishna with Vairavan, Hui, Canion, Foschiano and Yang, since one would have been motivated to improve the performance improvement [Krishna, col. 2 lines 26-27].

As per claim 6, the rejection of claim 5 is incorporated and Krishna teaches:

said preselected bytes comprise the first 144 bytes of said data packet [col. 4 lines 1-2, col. 6 lines 28-32].

As per claim 12, the rejection of claim 9 is incorporated and it encompasses limitations that are similar to limitations of claim 5. Thus, it is rejected for the same reason set forth in the rejection of claim 5 above.

As per claim 13, the rejection of claim 12 is incorporated and it encompasses limitations that are similar to limitations of claim 6. Thus, it is rejected for the same reason set forth in the rejection of claim 6 above.

6. Claims 8, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vairavan (US Pub. No. 2002/0083344) in view of Hui et al (US Pub. No. 2004/0010712) in view of Canion et al (US Patent No. 2002/0108059) in view of Foschiano et al (US Pub. No. 2004/0022253) and in view of Yang et al (US Patent No. 7,003,118) and in view of Osborne et al (US Patent No. 6,687,833).

As per claim 16, Vairavan discloses:

filtering techniques within different firewall layers [paragraph 0086, 0087 – i.e. a firewall comprising multiple layers], a first layer including a header match packet filtering engine, a second layer including a content match packet filtering engine configured to analyze the scope of at least one data packet [paragraph 0074, 0086, 0088, 0137 lines 1-3].

Further, Vairavan discloses:

a VPN configured to provide security functions for data between said LAN and said WAN, wherein said security functions are selected from the group consisting of encryption, decryption, encapsulation, and decapsulation of said data packets [paragraph 0109, 0112]; an interface configured to determined if said data packets are plain text or cipher text, said interface further configured to forward a preselected number of bytes to said firewall if said data packet are plain text, said interface further configured to forwarded said data packets to said VPN if said data packets are cipher text [Fig. 6A, 7, 8, paragraph 0132]. Further, Vairavan teaches a VPN processor configured to decrypt and decapsulate said at least one data packet, said VPN further includes an inbound security database having database of tunnels configured to provide VPN processor with tunnel information used to decrypt and decapsulate said at least one data packet, said VPN further including protocol instructions having macrocodes configured to instruct said VPN processor to decrypt and decapsulate said at least one data packet according to a user-defined security procedure [paragraph 0080-0085, 0091-0101].

Hui teaches a firewall which provides packet filtering function along with application proxy function (i.e. a third layer), a third layer including at lest one application proxy configured to provide additional pattern matching [paragraph 0220]. Further, Hui teaches a listening table which stores a TCP/UDP connection setup [paragraph 0070, 0149] and to forward the setup progress to a central processing unit (CPU) for tracking [paragraph 0070, 0084, 0090, 105].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Hui with Vairavan, since one would have been motivated to improve speed/security for firewall and speed for VPN [Hui, paragraph 0009].

Canion teaches a fourth layer including a session match engine configured to store a TCP/UDP connection setup and to forward the setup progress to a central processing unit (CPU) for tracking [paragraph 0067, 0068, 0072].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Canion with Vairavan and Hui, since one would have been motivated to examine the packet for security violation to distinguish real requests from attack based requests [Canion, paragraph 0009].

Foschiano teaches hardware engine to provide pre-analysis processing to reduce the workload of a central processing unit (CPU) [paragraph 0060, 0042].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Foschiano with Vairavan, Hui and Canion, since one would have been motivated to prevent overload of the inspection engine [Foschiano, paragraph 0042].

Yang teaches: the VPN including a VPN packet buffer configured to receive at least one of said data packets and to forward said at least one data packet to an inbound VPN processor to decrypt and decapsulate said at least one data packet, said VPN further including an inbound security database having a database of tunnels configured to

provide VPN processor with tunnel information used to decrypt and decapsulate said at least one data packet [Fig. 5, 6, col. 8 lines 8-67, col. 9 lines 1-18].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Yang with Vairavan, Hui, Canion and Foschiano, since one would have been motivated to increase the speed for the network security operation related to IPSEC and Authentication Headers [Yang, col. 1 lines 19-21].

Osborne teaches: defining one or more access control protocols [Fig. 3, col. 5 lines 27-65]; receiving a data packet [Fig. 2]; selecting a certain number of bytes of said data packet; processing said selected bytes using said access control protocols [Fig. 8, 9 col. 6 lines 60-67, col. 7 lines 6-21].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Osborne with Vairavan, Hui, Canion and Yang, since one would have been motivated to provide network security system capable of diverting and tracking potential attacks [Osborne, col. 2 lines 12-13].

As per claim 8, the rejection of claim 1 is incorporated and Vairavan teaches said firewall further includes access control modules [Fig. 4, 5].

Osborne teaches access control function comprising user-defined access control protocols [Fig. 2, 3].

As per claim 15, the rejection of claim 9 is incorporated and it encompasses limitations that are similar to limitations of claim 8. Thus, it is rejected for the same reason set forth in the rejection of claim 8 above.

Response to Amendment

7. Applicant has amended claims 1, 9 and 16 which necessitated new ground of rejection. See rejection above.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nirav Patel whose telephone number is 571-272-5936. The examiner can normally be reached on 8 am - 4:30 pm (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Vu can be reached on 571-272-3859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

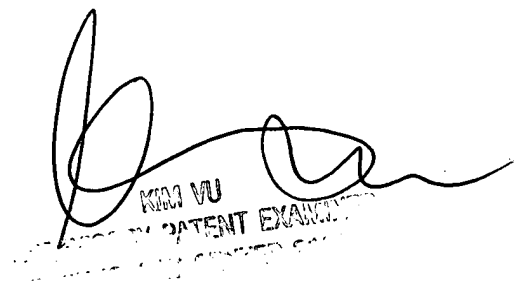
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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NBP

12/19/07



Handwritten signature and official stamp. The stamp includes the text "KIM WU" and "EXAMINER IN PATENT EXAMINATION".